DOCUMENT RESUME

ED 140 962 PS 009 345

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TITLE Temporal Integration and Inferences About Televised Social Behavior.
PUB DATE Mar 77
NOTE 12p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (New Orleans, Louisiana, March 17-20, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Age Differences; Aggression; *Cognitive Development; *Cognitive Processes; Elementary Education; *Elementary School Students; Memory; Sex Differences; Socioeconomic Background; *Television Research
IDENTIFIERS *Temporal Integration

ABSTRACT

This paper discusses research on age related aspects of children's processing and comprehension of the narrative content of family oriented television programs. In one study, the temporal integration necessary to make inferences about audiovisually presented information was examined in 254 second, fifth and eighth grade children. Subjects were shown one of four versions of an edited television program, each presenting different processing demands in terms of the number and organization of scenes. Afterwards, memory for explicitly portrayed events and implied information was tested. Results indicated that older children made better use of information conveyed by order than younger children, especially younger boys. In a second study, second grade children were shown one of two family situation comedies; one portraying a working class family and one portraying a middle class family. Results of two memory tests indicated that children who saw the show that portrayed characters and settings similar to their own class background inferred emotional states and relations better than those for whom the show represented higher or lower class settings. Another study indicated that information integration was more difficult when commercials separated an action and its consequences. Further research is suggested. (SB)

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TEMPORAL INTEGRATION AND INFERENCES ABOUT TELEVISED SOCIAL BEHAVIOR

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The problem I want to discuss today concerns age-related aspects of comprehension of the narrative dramatic content that comprises so large a part of the television diet of school-age and adolescent children. Children between the ages of 7 and 17 are heavy viewers of such fare as family dramas, situation comedies, and action-adventure programs, despite the fact that these programs are produced with an adult audience in mind. In our ongoing research program at Minnesota, our question has been, What are the characteristics of children's processing of these rather complex, audiovisually presented narratives? In particular, we have been concerned with the fact that, in order to comprehend the social roles, behaviors, and attitudes portrayed in these programs, children are required not only to select judiciously from the large amount of available information, but also to infer the relatedness among discretely presented units of information across time.

A brief example may make clear the sort of problem we are working with. Television dramas often involve one or more distinctive and salient social acts -- say, aggression -- along with some information that is relevant to evaluations of those acts and the characters who perform them. For example, if violent fighting or shooting is perpetrated by a character who clearly wishes to harm his victim and who is obviously punished for what he does, the character and his behavior are likely to be evaluated negatively; on the other hand, aggression for the purpose of, say, freeing a hostage, for which the perpetrator earns a medal of bravery, is likely to be viewed much more positively. This contrast is familiar from laboratory studies in which

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Paper presented as part of a symposium on Cognitive Processing of Television Content: Perspective on the Effects of Television on Children, at the biennial meeting of the Society for Research in Child Development, New Orleans, Louisiana, March 17, 1977.

characters are judged to be naughty or nice because of the motives or consequences that are described along with their actions; and the same factors apparently affect observers' social behavior after watching aggressive models in observational learning experiments. In the stimuli for both these types of studies, motives and consequences are explicit and clearly relevant to the focal behavior; whereas in television narratives, cues like motives and consequences are often portrayed subtly and inexplicitly (which is a problem in its own right) and -- more to the point for my comments -- are frequently separated in time from each other and from the act to which they pertain. It's up to the viewer to infer that an action occurred because of the actor's motive that was portrayed some minutes earlier and that the consequences were, indeed, the result of the action. Our interest has been in how the integration necessary for making these inferences might occur with the kinds of social portrayals children see on television.

We are far from being able to provide a model of the process, but we do have some information about the abilities of children of different ages to recall and recognize information from programs that would seem to depend on some degree of temporal integration. Several themes emerge from our past and current research on these problems.

First, there is a striking progression over the grade-school years in children's abilities for integrating audiovisually presented information generally. In a recently completed study (Collins, Wellman, Keniston & Westby, in preparation), 254 second, fifth, and eighth graders viewed one of four versions of an edited television program. The four versions presented different processing demands, in terms of the number and organization of scenes. A panel of adult judges had previously provided interrater agreement on the nature of the information on which the children were tested. Our questions dealt with memory for both the explicitly portrayed events in the program and the information that is only implied. For example, we typically asked about two single

central events individually and also about the unstated, but -- for adults -- readily inferrable causal relations between the two scenes.

Not surprisingly, both of these types of content are increasingly well remembered across grades. Figure 1 shows the strong age function on memory

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Insert Figure 1 about here

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for the explicitly presented content. Along the abscissa are the four viewing conditions -- two in which different numbers of scenes were presented in a chronological, or temporally ordered, sequence (the Simple-Ordered and Complex-Ordered conditions) and two corresponding versions in which these same scenes were randomly ordered, or jumbled (the Simple-Jumbled and Complex-Jumbled conditions). The ordinate is calibrated for the mean number of correct answers to items about essential, or central, information that was explicitly presented in single scenes. Second graders recalled an average of 66% of the scenes that adults had judged as essential to the plot; fifth graders recalled 84% of these scenes, and eighth graders recalled 92% -- nearly all of them. These findings replicate earlier reports that recognition-memory scores for audiovisual narrative content increase with age, and they also extend them by showing that the results hold across stimuli that represent different numbers of scenes and different degrees of organization.

Now let's look at performance on our measures of memory for <u>implicit</u> information -- the content that is not explicitly presented, but is implied by the relationships between discrete scenes (like causation, for example). Second graders had an overall mean score of fewer than half (47%) of the items adults had agreed upon, and fifth and eighth graders scored 67% and 77%, respectively. But as we have previously reported, children's ability to make the inferences required for understanding implicit information also varied with the particular version of the stimulus program they watched. Figure 2 shows the relationship

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Insert Figure 2 about here

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of inferences to both age and viewing condition. The points on these graphs refer to the number of correct answers to questions about implicit information. The left graph shows boys' scores; the right graph, girls' scores. On both graphs, you can see that fifth and eighth graders do best in the two ordered conditions. This also appears to be true for girls at the second-grade level, although not for second-grade boys. (Indeed, second-grade boys appear to be performing at about chance level on this measure of inferences in all four conditions.) Apparently, older children make better use of the information conveyed by order than younger children -- especially the younger boys -- and, thus, more readily extract the information implied by the proper temporal relation of scenes to one another.

There are other indications in our data that the fifth and eighth graders we studied integrated scenes more actively than the second-grade children. For example, we had information about children's recall and recognition memory from questionnaire measures and interviews and, thus, were able to determine whether children knew the two discrete scenes or premises on which each of the inferences we asked about were based. We were then able to estimate the probability that each child would make a correct inference, given that both of the premise scenes, or only one of them, or neither one, were known at the time the children were tested. This kind of analysis tells us about the extent to which children of different ages have inferred the relatedness of discrete pieces of information from the program. In Figure 3, the black bars represent the probability that inference items will be answered correctly, given that

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Insert Figure 3 about here

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children have shown evidence in testing of knowing both pieces of discrete information on which the inference is based. It's clear that the likelihood of correctly integrating important information about the plot across temporally separate discrete scenes is relatively poor for second graders -- the probability

is less than 50%, just greater than chance. For fifth and eighth graders, it is considerably better (about 75%). So when they know the discrete, explicit scenes, older children are more likely to go beyond it and draw out the implied relationships.

Unfortunately, we cannot tell from these data whether children spontaneously integrate information as they view the program or simply draw the conclusions we ask about when we test them. On the graphs, the shaded bars show the mean probability of correct inferences at each age, given that only one piece or none of the premise information was known at time of testing. Remember that the black bars show the probability when both premises are known. The likelihood of correct inferences when there is evidence at testing that children know only one, or neither, of the premise scenes is just greater than chance at all three grade levels, which might be taken as an indication that inferences are made and stored during viewing. However, fifth and eighth graders are significantly more likely to infer correctly when both premises are known; and the possibility exists that since they know the premises, they may often be making inferences at the time of testing, rather than spontaneously during viewing. This problem is an important one, because we want to know how likely children of different ages are to infer the relations among cues that are potentially relevant to behavioral effects on their own -- even when adults like us aren't questioning them about it.

As you can see from these data, then, children as old as second graders generally perform rather poorly on these measures of inference from temporally separated premises; but we have recently found that the difficulties are somewhat ameliorated under certain conditions. Let me briefly mention our tack in this work. First, we have attempted to characterize children along some dimension of socialization (or social scheme or social knowledge) like social-class background or social-role stereotypes. We then show them carefully selected, contrasting television dramatic plots and test them on their understanding of the discrete central events in the program, characters' affective

state, inferences about relations among scenes, and peripheral or incidental content. We analyze the data for whether memory and inference vary with differences in social-knowledge schemes we have attributed to the children, particularly the younger ones.

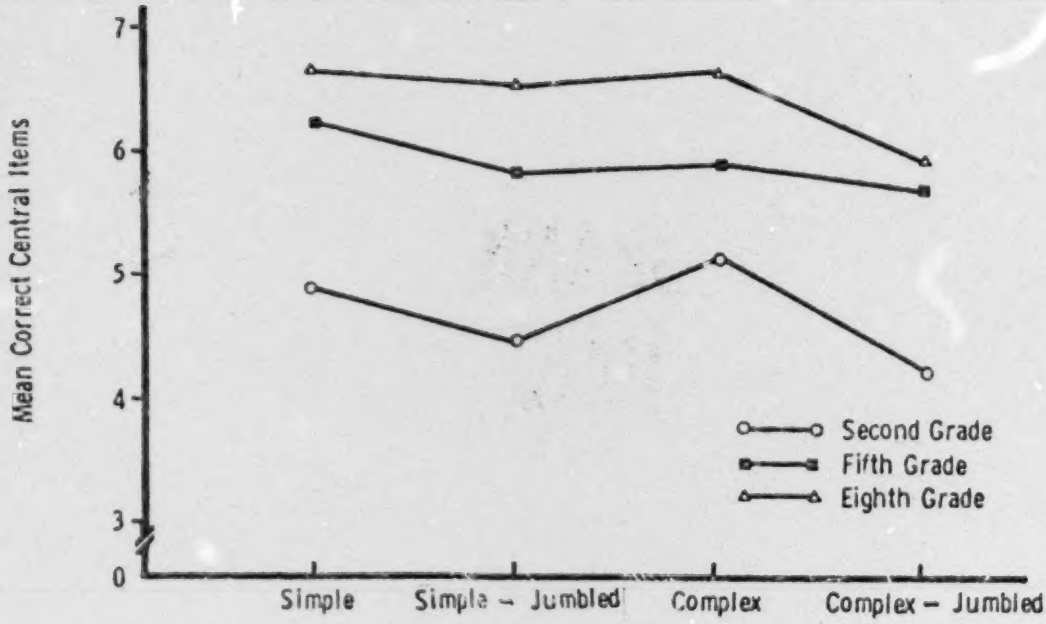
In the one study we have completed (Newcomb & Collins, in preparation), socioeconomic status served as the summary variable for the different social schemes or sets that could be expected. The children saw one of two family situation comedies, one portraying a working-class family and one portraying a middle-class family. Family composition, general plot events, and the complexity of the programs were similar, and the two memory tests we constructed seemed to be of similar degrees of difficulty. As we predicted, children at the second-grade level who saw the show that portrayed characters and settings similar to their own social-class backgrounds inferred emotional states and relations between scenes significantly better than second graders for whom the show represented a higher- or lower-social class setting. All children at the older ages did rather well, regardless of the program they watched; but at the youngest age congruence between the content of the programs and the child's general social-knowledge schemes facilitated understanding. We and others need to examine further the implications of the possibility that young viewers are least likely to remember and infer correctly about the content of narratives that involve the sorts of settings with which they are relatively unfamiliar.

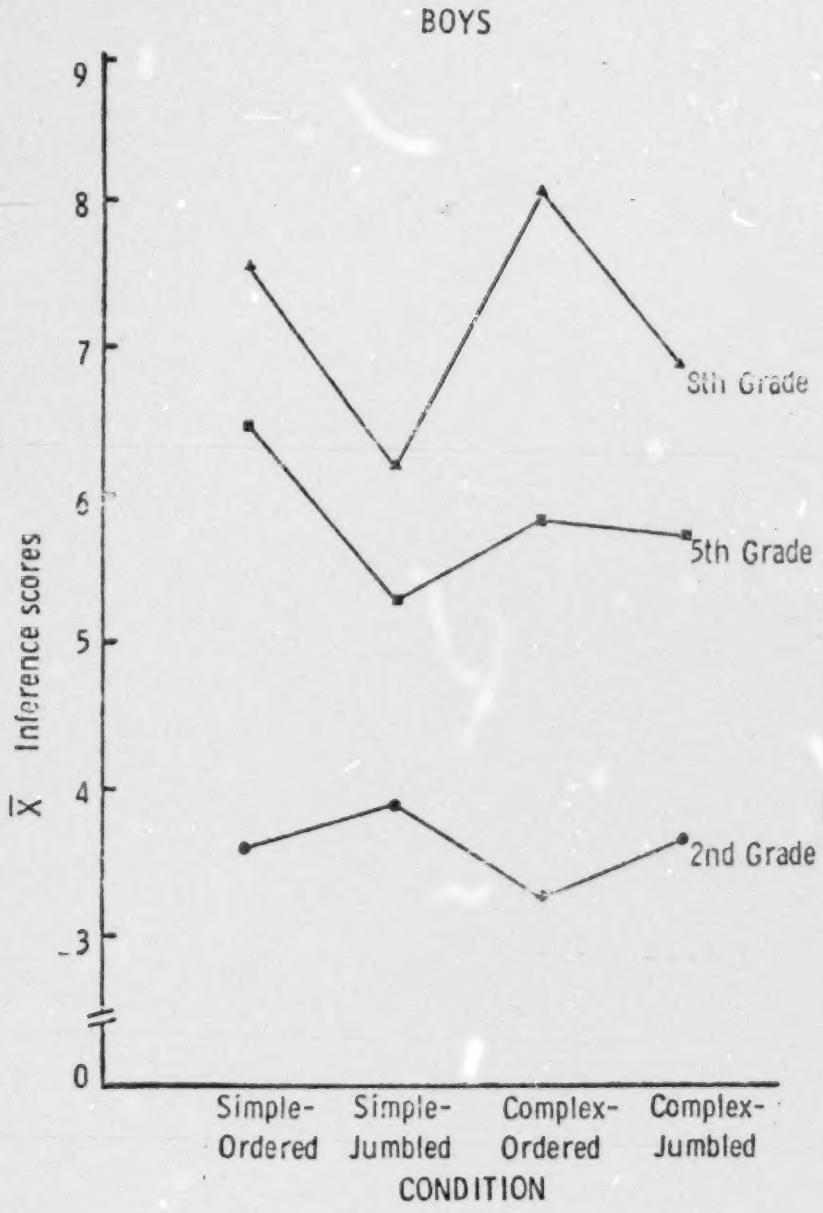
The implications of findings like these for the social effects of television are still largely unclear -- and undoubtedly are quite complex. Some of our evidence is suggestive, however. For example, we reported several years ago that young children who had watched an action-adventure program had difficulty remembering the relations of the motives and consequences cues to the modeled aggression with which they were depicted. Cues like these have been found to moderate the likelihood that observed aggression will affect the behavior of viewers, but kindergarteners and second graders in this research remembered

the aggressive scene, but only infrequently knew its links with the motives and consequences that were potential moderators of it. In another published study (Collins, 1973), we inserted commercials between scenes of negative motives and negative consequences for aggression and the violent scene itself; we found that third graders' own tendencies to choose aggressive responses increased, compared to children of the same age who saw the three scenes close together in time. It seems likely that the integration task was more difficult for the first group than for the second, presumably because of the temporal separation imposed by the commercials; but there was no evidence of behavioral differences like these among the sixth and tenth graders who saw both types of programs.

Two caveats must be noted. First, we know very little about what exactly takes place as children relate information across time. The question is being actively pursued by workers on cognitive and social-inference and attribution problems in other laboratories, and their efforts always inform our work, despite the fact that the tasks with which they work are often quite different from the tasks of comprehending complex, audiovisually presented narratives. We hope to proceed in parallel to other efforts in the field, continuing our focus on the responses of children to the particular social cues that are pertinent to the evaluation and subsequent performance of observed behaviors.

A second qualification we need to make is that we obviously can't estimate what part of the variance in the social impact of television is due to incomplete or distorted comprehension of televised portrayals. Certainly, comprehension is only one factor in a very complex equation for television effects. Nevertheless, children's ability to integrate socially pertinent content from programs seems to vary greatly during the middle childhood and adolescent years and the suggestive evidence of concomitant effects on behavior in the laboratory indicates that their understanding of what they see must become a term in the effects equation in the future.


Mean Correct Central Items
7
6
5
4
3
0
Second Grade
Fifth Grade
Eighth Grade
Simple
Simple – Jumbled
Complex
Complex – Jumbled


BOYS
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8
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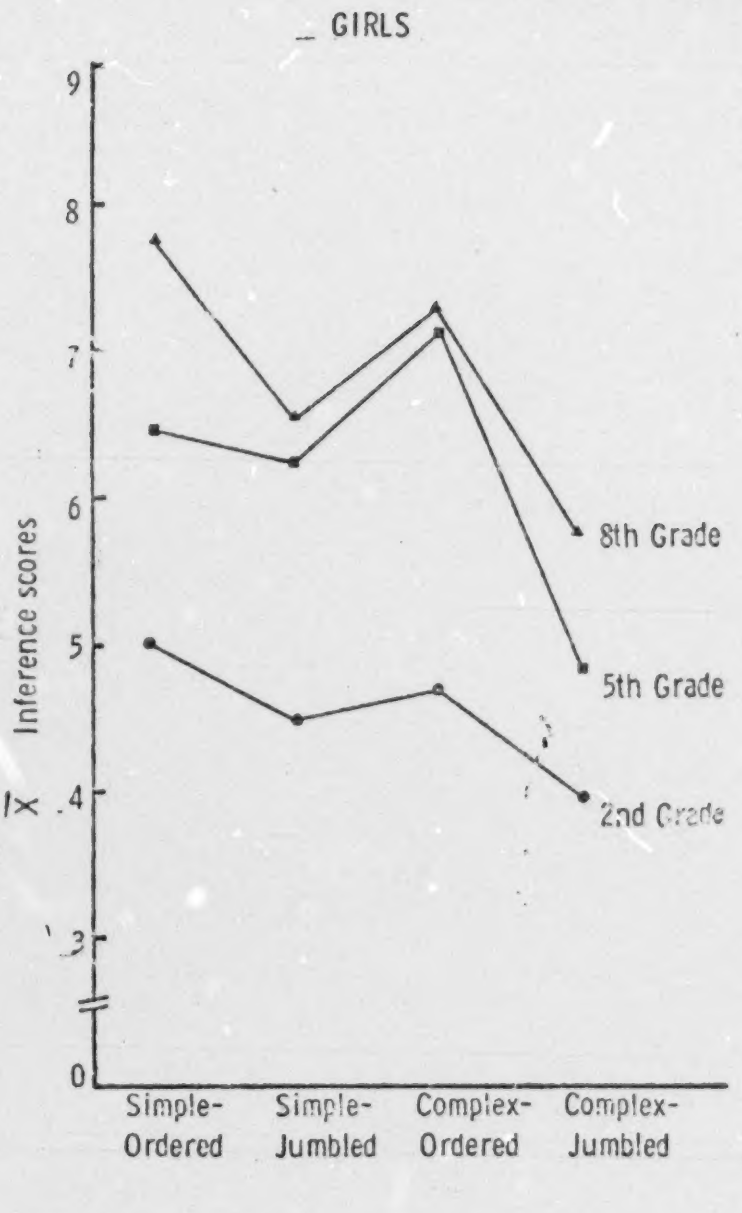
$\bar{X}$ Inference scores
8th Grade
5th Grade
2nd Grade
Simple-Ordered
Simple-Jumbled
Complex-Ordered
Complex-Jumbled
CONDITION


GIRLS
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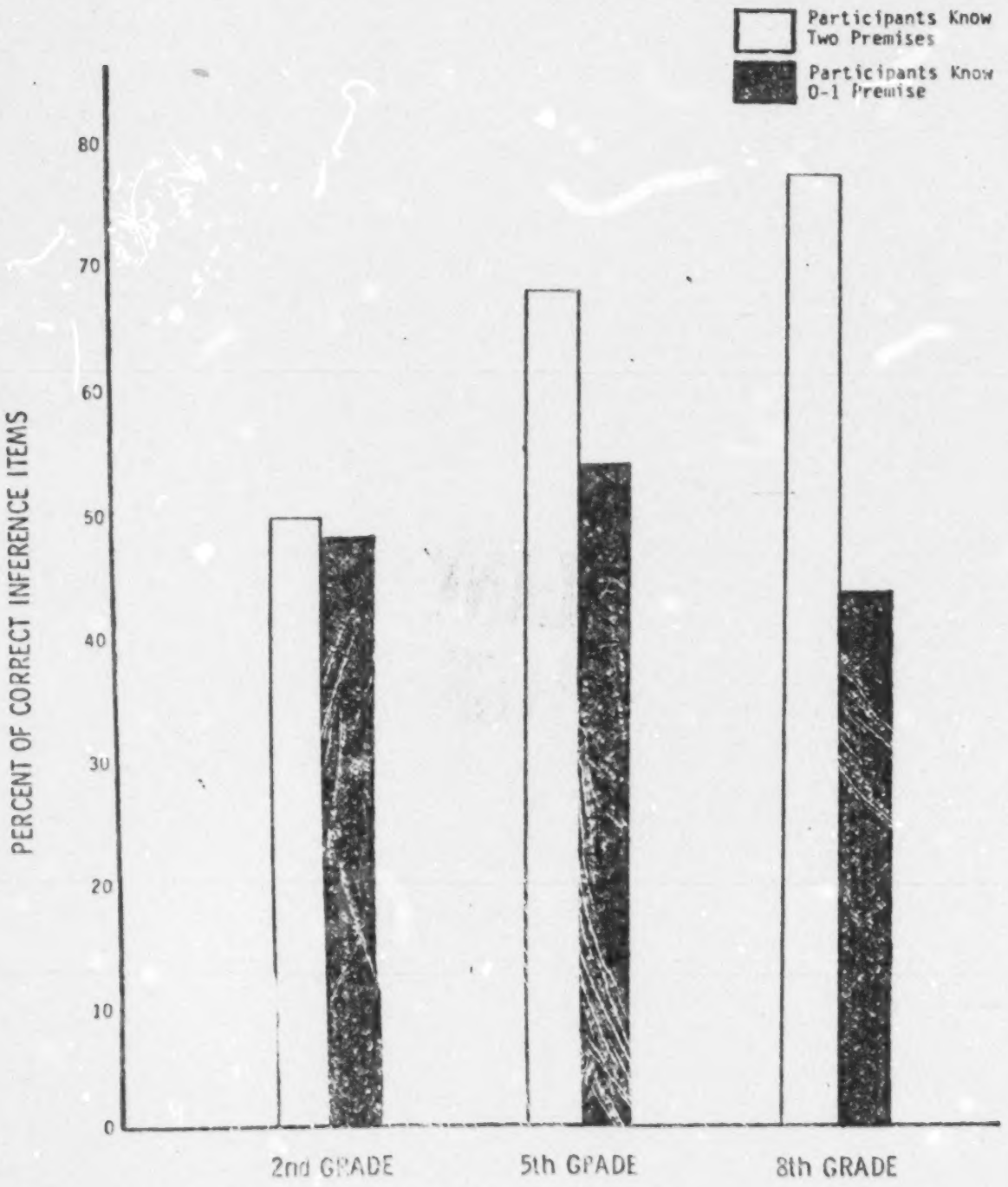
$\bar{X}$ Inference scores
8th Grade
5th Grade
2nd Grade
Simple-Ordered
Simple-Jumbled
Complex-Ordered
Complex-Jumbled



Collins, Wellman, Keniston, & Westby